



## **APPENDIX AA INDIRECT IMPACT ANALYSIS**

## **ANALYSIS OF INDIRECT IMPACTS**

The analysis of indirect impacts in the FEIS for I-69 Section 5 utilized the Year 2006 National Land Cover Data (NLCD) set.<sup>1</sup> For each Traffic Analysis Zone (TAZ), the following NLCD categories were identified:

- Developed
- Unusable
- Agriculture/other in floodplain
- Forest in floodplain
- Available agricultural/other land
- Available forest

The sum of the available agricultural/other land and the available forest gave the total “available” land as of the present time for each TAZ. For those TAZs which have no available agricultural/other land or forest land, the total available land would be zero (0).

The Expert Land Use Panel was a critical element in determining future land use for Monroe and Morgan counties that is the basis for the indirect analysis. In the fall of 2011 it was decided to combine the two Expert Land Use Panels that had been meeting for Sections 5 and 6 into a single panel that would focus only on Section 5. This group met several times in the fall of 2011.

At the first meeting of the single Expert Land Use Panel, the focus was to review the household and employment forecasts for Monroe and Morgan counties that would be the control totals for the entire allocation process. Forecasts were considered from Woods and Poole as well as STATS Indiana. After the Expert Land Use Panel agreed on the forecast control totals, the panel proceeded to allocate the future household growth to the TAZs. At a second meeting of the Expert Land Use Panel, the future employment growth was allocated to the TAZs.

These allocations of households and employment are converted into acres using standard development ratios. For example, in Monroe County acreage impacts are estimated using a figure of 17.8 employees/acre and 4.82 households/acre. The results are the No-Build growth in Monroe and Morgan counties.

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<sup>1</sup> National Land Cover Data (NLCD) is a land-cover data set for the United States. It is produced by the Multi-Resolution Land Characteristics Consortium (MRLC), made up of federal government agencies. The agencies which participated in the formulation of the 2006 National Land Cover Data include U.S. Environmental Protection Agency; U.S. Department of Commerce (National Oceanic and Atmospheric Administration); National Aeronautic and Space Administration; U.S. Department of the Interior (Bureau of Land Management, National Park Service, Fish and Wildlife Service, Office of Surface Mining Reclamation and Enforcement, and U.S. Geological Survey); and U.S. Department of Agriculture (Forest Service and Natural Resources Conservation Service). It is the best available source for comprehensive land use data for the United States. For additional information about the MRLC or NLCD, see <http://www.epa.gov/mrlc/>

The total acres of No-Build growth for the forecast year are then subtracted from the total “available” land in the present day. For some TAZs, the land is so attractive for future development that the No-Build growth (based upon the development ratios) actually exceeds the amount of “available” land. In these situations, the development is occurring on land that is already developed resulting in greater densities. For example, the No-Build growth in that TAZ could be in the form of a high-rise apartment building that would exceed the 4.82 households/acre value. Other examples could include existing buildings replaced by larger or taller buildings.

In an urban area like Bloomington, it is very common for this growth situation to occur. In these TAZs where growth exceeds the “available” land and as a result is occurring on land already developed, the acreage on developed land is summed. This situation can occur for both No-Build growth as well as induced growth. Table 1 shows the acreages on developed land for Alternatives 4, 5, 6, 7, and 8.

TABLE 1 – GROWTH ON ALREADY DEVELOPED LAND for TAZs IN MONROE AND MORGAN COUNTIES						
		Section 5 Alternatives				
County		Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8
Monroe						
	No-Build Growth	1898	1898	1898	1898	1898
	Induced Growth	10	0	10	0	0
	Total Growth	1908	1898	1908	1898	1898
Morgan						
	No-Build Growth	205	205	205	205	205
	Induced Growth	13	11	11	11	11
	Total Growth	218	216	216	216	216
Both	Total Growth	2126	2114	2124	2114	2114

All numbers are in acreages

The values in Table 1 will be used in the cumulative impacts analysis (Chapter 5.24). Since these values reflect the added households and jobs that will be accommodated on land which is classified as “developed” resulting in greater densities, the calculations in Chapter 5.24 for the acreage impacts of No-Build growth and induced growth should not include the acreages in Table 1.